



January 16, 2019

VIA Electronic Mail

Claudia Smith
Tribal NSR Permits Lead
USEPA Region 8
1595 Wynkoop Street
Denver, CO 80202

**RE: Oil and Natural Gas Minor Source Registration Form Part 2 – Emission and Production Information
EP Energy E&P Company, L.P.
Ute Tribal 3-25A3 Well Site**

Dear Ms. Smith:

On behalf of EP Energy E&P Company L.P. (EP Energy), Peakview Environmental, LLC (Peakview) is submitting the enclosed Oil and Natural Gas Minor Source Registration Form Part 2 – Emission and Production Information for the Ute Tribal 3-25A3 well site and tank battery which began production on November 19, 2018.

Please contact Chelsea Cantrell, EP Energy at chelsea.cantrelle@epenergy.com or me at julie.spear@epenergy.com with any questions.

Sincerely,

PEAKVIEW ENVIRONMENTAL, LLC

Julie Spear, PE
Principal Engineer

Enclosures

cc: Chelsea Cantrelle, EP Energy
Bruce Pargeets, Director, Ute Indian Tribe Energy & Minerals Department
Minnie Grant, Air Coordinator, Ute Indian Tribe Energy & Minerals Department



United States Environmental Protection Agency

<http://www.epa.gov/air/tribal/tribalnsr.html>

Part 2: Submit Within 60 Days After Startup of Production -- Emission and Production Information

FEDERAL IMPLEMENTATION PLAN FOR TRUE MINOR SOURCES IN INDIAN COUNTRY IN THE OIL AND NATURAL GAS PRODUCTION AND NATURAL GAS PROCESSING SEGMENTS OF THE OIL AND NATURAL GAS SECTOR Registration for New True Minor Oil and Natural Gas Sources and Minor Modifications at Existing True Minor Oil and Natural Gas Sources

Please submit information to: Attn: Ms. Claudia Smith
Air Program (8P-AR)
1595 Wynkoop Street
Denver, CO 80202-1129
Phone: 303-312-6520
Email: smith.claudia@epa.gov

Attn: Minnie Grant
P.O. Box 70
& 988 South 7500 East
Fort Duchesne, UT 84026
Phone: 435-722-5141
Email: minnieg@utetribes.com

A. GENERAL SOURCE INFORMATION (See Instructions Below)

1. Company Name EP Energy E & P Company, L.P.		2. Source Name Ute Tribal 3-25A3	
3. Type of Oil and Natural Gas Operation Oil and Gas Well Site		4. New Minor Source? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
		5. True Source Modification? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
6. NAICS Code 211111		7. SIC Code 1311	
8. U.S. Well ID(s) or API Number(s) [if applicable] 43-013-53214			
9. Area of Indian Country Uintah and Ouray Reservation	10. County Duchesne	11a. Latitude 40.371753 (NAD 83)	11b. Longitude -110.175186 (NAD 83)

B. CONTACT INFORMATION (See Instructions Below)

1. Owner Name EP Energy E&P Company, L.P.	Title Asset Owner
Mailing Address Attn: Altamont Asset -Land Department 1001 Louisiana Street, Suite 2400 Houston, TX 77002	
Email Address N/A	
Telephone Number 435-454-4245	Facsimile Number N/A
2. Operator Name (if different from owner) (Same as Owner)	Title
Mailing Address	
Email Address	
Telephone Number	Facsimile Number
3. Source Contact Chelsea Cantrelle	Title HSER Advisor
Mailing Address P.O. Box 4660 Houston, TX 77210-4660	
Email Address chelsea.cantrelle@epenergy.com	
Telephone Number 71-779-6206	Facsimile Number N/A

4. Compliance Contact (Same as Source Contact)	Title
Mailing Address	
Email Address	
Telephone Number	Facsimile Number

C. EMISSIONS AND OTHER SOURCE INFORMATION

Include all of the following information in the table below and as attachments to this form:

Note: The emission estimates can be based upon actual test data or, in the absence of such data, upon procedures acceptable to the Reviewing Authority. The following procedures are generally acceptable for estimating emissions from air pollution sources: (1) unit-specific emission tests; (2) mass balance calculations; (3) published, verifiable emission factors that are applicable to the unit (i.e., manufacturer specifications); (4) other engineering calculations; or (5) other procedures to estimate emissions specifically approved by the Reviewing Authority. Guidance for estimating emissions can be found at <http://www.epa.gov/ttn/chief/efpac/index.html>.

- ☒ Narrative description of the operations.
- ☒ Identification and description of any air pollution control equipment and compliance monitoring devices or activities.
- ☒ Type and actual amount (annually) of each fuel that will be used.
- ☒ Type of raw materials used (e.g., water for hydraulic fracturing).
- ☒ Actual, annual production rates.
- ☒ Actual operating schedules.
- ☒ Any existing limitations on source operations affecting emissions or any work practice standards, where applicable, for all regulated New Source Review (NSR) pollutants at your source. Indicate all requirements referenced in the Federal Implementation Plan (FIP) for True Minor Sources in Indian Country in the Oil and Natural Gas Production and Natural Gas Processing Segments of the Oil and Natural Gas Sector that apply to emissions units and air pollution generating activities at the source or proposed. Include statements indicating each emissions unit that is an emissions unit potentially subject to the requirements referenced in the FIP, but does not meet the definition of an affected facility under the referenced requirement, and therefore, is not subject to those requirements.
- ☒ For each emissions unit comprising the new source or modification, estimates of the total allowable (potential to emit) annual emissions at startup of production from the air pollution source for the following air pollutants: particulate matter, PM₁₀, PM_{2.5}, sulfur oxides (), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compound (VOC), lead (Pb) and lead compounds, fluorides (gaseous and particulate), sulfuric acid mist (H₂SO₄), hydrogen sulfide (H₂S), total reduced sulfur (TRS) and reduced sulfur compounds, including all calculations for the estimates. Allowable annual emissions are defined as: emissions rate of an emissions unit calculated using the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical

or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation, or the effect it would have on emissions, is legally and practically enforceable. You must determine the potential for emissions within 30 days from the startup of production.

- ☒ For each emissions unit comprising the new source or modification, estimates of the total actual annual emissions during the upcoming, consecutive 12 months from the air pollution source for the following air pollutants: particulate matter (PM, PM₁₀, PM_{2.5}), sulfur oxides (SO_x), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compound (VOC), lead (Pb) and lead compounds, ammonia (NH₃), fluorides (gaseous and particulate), sulfuric acid mist (H₂SO₄), hydrogen sulfide (H₂S), total reduced sulfur (TRS) and reduced sulfur compounds, including all calculations for the estimates. Estimates of actual emissions must take into account equipment, operating conditions, and air pollution control measures. You should calculate an estimate of the actual annual emissions using estimated operating hours, production rates, in-place control equipment, and types of materials processed, stored, or combusted.

D. TABLE OF ESTIMATED EMISSIONS

Provide in the table below estimates of the total allowable annual emissions in tons per year (tpy) and total actual annual emissions (tpy) for the following pollutants for all emissions units comprising the new source or modification.

POLLUTANT	TOTAL ALLOWABLE ANNUAL EMISSIONS (TPY)	TOTAL ACTUAL ANNUAL EMISSIONS (TPY)
PM	0.61	0.61
PM ₁₀	0.31	0.31
PM _{2.5}	0.31	0.31
SO _x	0.02	0.02
NO _x	7.93	7.93
CO	18.54	18.54
VOC	13.08	13.08
Pb	0.00	0.00

POLLUTANT	TOTAL ALLOWABLE ANNUAL EMISSIONS (TPY)	TOTAL ACTUAL ANNUAL EMISSIONS (TPY)
NH3	0.00	0.00
Fluorides	0.00	0.00
H₂SO₄	0.00	0.00
H₂S	0.00	0.00
TRS	0.00	0.00

Instructions for Part 2

Please answer all questions. If the item does not apply to the source and its operations write "n/a". If the answer is not known write "unknown".

A. General Source Information

1. Company Name: Provide the complete company name. For corporations, include divisions or subsidiary name, if any.
2. Source Name: Provide the source name. Please note that a source is a site, place, or location that may contain one or more air pollution emitting units.
3. Type of Operation: Indicate the generally accepted name for the oil and natural gas production or natural gas processing segment operation (e.g., oil and gas well site, tank battery, compressor station, natural gas processing plant).
4. New True Minor Source: [Per Federal Indian Country Minor New Source Review Rule, 40 CFR 49.153].
5. True Minor Source Modification: [Per Federal Indian Country Minor New Source Review Rule, 40 CFR 49.153].
6. North American Industry Classification System (NAICS): The NAICS Code for your oil and natural gas source can be found at the following link for North American Industry Classification System:
<http://www.census.gov/eos/www/naics/>.
7. Standard Industrial Classification Code (SIC Code): Although the new NAICS code has replaced the SIC codes, much of the Clean Air Act permitting processes continue to use these codes. The SIC Code for your oil and natural gas source can be found at the following link for Standard Industrial Classification Codes:
http://www.osha.gov/pls/imis/sic_manual.html.
8. U.S. Well ID or API Number: Unique well identifier as assigned by the Federal or State oil and gas regulatory agency with primacy, using the American Petroleum Institute (API) Standard for number format (pre-2014) or the Professional Petroleum Data Management (PPDM) Association US Well Number Standard (2014-present). Provide IDs for all oil and natural gas production wells associated with the facility, if applicable. May not be applicable for downstream production sources, such as compressor stations.
9. Area of Indian Country: Provide the name of the Indian reservation within which the source is operating.
10. County: Provide the County within which the source is operating.
11. Latitude & Longitude (11a. and 11b.): Provide latitude and longitude location(s) in decimal degrees, indicating the datum used in parentheses. These are GPS (global positioning system) coordinates. This information should be provided in decimal degrees with 6 digits to the right of the decimal point, indicating the datum used in parentheses (i.e., NAD 27, NAD 83, WGS 84 – WGS 84 is preferred over NAD 27).

B. Contact Information

Please provide the information requested in full.

1. Owners: List the full name (last, middle initial, first) of all owners of the source.
2. Operator: Provide the name of the operator of the source if it is different from the owner(s).
3. Source Contact: The source contact must be the local contact authorized to receive requests for data and information.
4. Compliance Contact: The compliance contact must be the local contact responsible for the source's compliance with this rule. If this is the same as the Source Contact please note this on the form.

C. Attachments

The information requested in the attachments will enable the U.S. Environmental Protection Agency (EPA) to understand the type of oil and natural gas source being registered and the nature and extent of the air pollutants to be emitted.

Disclaimers:

The public reporting and recordkeeping burden for this collection of information is estimated to average 6 hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

Information in these forms submitted in compliance with the final Federal Indian Country Minor NSR rule may be claimed as confidential. A company may assert a claim of confidentiality for information submitted by clearly marking that information as confidential. Such information shall be treated in accordance with EPA's procedures for information claimed as confidential at 40 CFR part 2, subpart B, and will only be disclosed by the means set forth in the subpart. If no claim of confidentiality accompanies the report when it is received by EPA, it may be made public without further notice to the company (40 CFR 2.203).

NEW MINOR SOURCE REGISTRATION - PART 2 ATTACHMENT

Ute Tribal 3-25A3
Remote Location
Duchesne County, Utah

Prepared For:



EP Energy E&P Company, L.P.
P.O. Box 4660
Houston, Texas 77210-4660

Submitted By:



Peakview Environmental LLC
2412 Iris Avenue
Boulder, Colorado 80304

January 2019

Project No. EP0182016

Table of Contents

1.0	INTRODUCTION	1
1.1	Site Description	1
1.2	Site Production.....	1
2.0	PROCESS DESCRIPTION.....	2
3.0	EMISSION CALCULATIONS.....	3
3.1	Representative Analysis	3
3.2	Storage Tanks.....	3
3.2.1	Oil Storage Tanks	3
3.2.2	Produced Water Storage Tank	3
3.2.3	Overflow Storage Tank	3
3.3	Crude Oil and Produced Water Loading	3
3.4	Heaters	4
3.5	Pneumatic Controllers.....	4
3.6	Equipment Fugitives	4
3.7	Internal Combustion Engine.....	4
3.8	Combustor/Combustion Device	4
4.0	FEDERAL RULE APPLICABILITY ANALYSIS	5
4.1	New Source Performance Standards (40 CFR Part 60)	5
4.2	National Emission Standards for Hazardous Air Pollutants (40 CFR Part 63).....	6

List of Appendices

Appendix A	Process Flow Diagram and Site Plan
Appendix B	Emissions Calculations

1.0 INTRODUCTION

EP Energy E&P Company L.P. (EP Energy) owns and operates the Ute Tribal 3-25A3 site, a new oil and gas production site located in Duchesne County, Utah. The site services one well, Ute Tribal 3-25A3, API# 43-013-53214.

1.1 Site Description

EP Energy has installed and is operating the following equipment and emission sources at the site:

- Two (2) 400-barrel (bbl) oil storage tanks
- One (1) 400-bbl produced water storage tank
- One (1) 400-bbl overflow storage tank
- One (1) heater treater and various natural gas-fired heaters ≤ 7.5 -MMBtu/hr combined total
- Controlled oil truck loading – emissions routed to combustor
- Controlled produced water truck loading – emissions routed to combustor
- One (1) 7.7-MMBTU/hr combustor
- Four (4) intermittent-bleed pneumatic controllers
- One (1) 300-hp natural gas-fired generator engine
- Equipment fugitives
- Miscellaneous storage containers (motor oil, methanol, glycol, etc.) ≤ 500 gallons each and combined capacity of $\leq 1,600$ gallons
- Electric pump jack

1.2 Site Production

The site began production on November 19, 2018. The average daily production rate over the first 30 days of production was 570 barrels of oil per day (BOPD). This rate is expected to decline and stabilize over time. However, the 570 BOPD or 208,081 barrels of oil per (BOPY) production rate was conservatively used to calculate the actual site emissions. Produced water production was conservatively estimated to be equal to the oil production rate.

2.0 PROCESS DESCRIPTION

The Ute Tribal 3-25A3 site includes one wellhead with separation and storage capability. The site will operate 8,760 hours per year. A general process flow diagram and applicable in Appendix A of this document. A site plan is included in Appendix B.

Well production is brought to the surface via an electric pump jack and routed to a heater treater to separate the well fluids into three constituent phases: gas, oil and water. The separated gas phase is routed to the gas sales pipeline. The separated oil phase is routed to the heated vertical fixed-roof crude oil storage tanks prior to truck transport offsite to sales. The separated water phase is routed to the heated vertical fixed-roof produced water storage tank prior to being transported offsite for disposal. Both oil and produced water are transferred to tanker trucks utilizing the submerged loading method. During an emergency upset condition oil or produced water may be rerouted to the 400-bbl overflow tank.

The natural gas fuel for the heaters and the generator engine is buy-back gas from the natural gas processing plant and is assumed to be pipeline specification quality. The total rating for all heaters is $\leq 7.5\text{-MMBtu/hr}$.

Crude oil and produced water storage tank and truck loading emissions are routed to a combustor for $\geq 98\%$ control of volatile organic compounds (VOCs).

Site loads may be powered by a natural gas-fired generator or supplied electricity.

3.0 EMISSION CALCULATIONS

Emissions calculations for the emission sources at the site are included in Appendix C of this document. Calculation methodologies for each emission source are discussed in the following sections.

3.1 Representative Analysis

Emission calculations are based on a liquid sample collected from the separator at the Powell 2-13A2 facility on 6/17/16. Laboratory analysis of the flash gas evolved from hydrocarbon liquid and extended hydrocarbon analysis of the liquids were conducted on the sample. The laboratory report is included in Appendix C.

3.2 Storage Tanks

3.2.1 Crude Oil Storage Tanks

Tank flash losses from the oil storage tanks were calculated using the gas-to-oil ratio (GOR) measured by laboratory procedures method and the flash gas composition from the laboratory flash liberation of liquid hydrocarbon analysis.

Working and standing emission losses from the oil storage tanks were calculated using EPA TANKS 4.09d to determine total annual emissions from the tanks. The output from a Promax simulation using the stable oil option was used to speciate the total emissions from the TANKs report. The detailed TANKs report and the Promax output are included in Appendix B.

The flash and working and standing storage tank emissions are routed to the combustor for a minimum 98% VOC control.

3.2.2 Produced Water Storage Tank

The well fluids undergo separation in the heater treater where oil/water/gas are separated. Low levels of dissolved hydrocarbons remain in the produced water and VOC emissions from the water storage tank are assumed to be 1% of the flashing and working and breathing oil emissions.

3.2.3 Overflow Storage Tank

The overflow tank will remain empty except in emergency upset conditions when either the oil or produced water tanks are rerouted to the overflow tank. The overflow tank is emptied when practicable following the upset event. Total site production/throughput is not affected by the use of the of the overflow tank therefore; use of the tanks does not affect the site-wide VOC emissions.

3.3 Crude Oil and Produced Water Loading

Crude oil truck loading emissions were calculated using the AP-42 Section 5.2, equation 1 and submerged loading constants from Table 5.2-1. The crude oil and water loading emissions will be routed to the combustor via a vapor capture line. The capture efficiency is 70% and combustor control

efficiency is $\geq 98\%$. Produced water emissions are assumed to be negligible due to the low concentrations of dissolved VOCs present and are calculated as 1% of crude oil emissions.

3.4 Heaters

The combined heater emissions were calculated using AP-42 Section 1.4 emission factors. Pipeline quality natural gas is used as fuel for the heaters.

3.5 Pneumatic Controllers

The pneumatic controller emissions were calculated using the number of controllers, average annual hours of operation and UDAQ intermittent-bleed pneumatic controller emission factor.

3.6 Equipment Fugitives

Equipment fugitives were calculated using the flash gas composition and 40 CFR 98 Subpart W emission factors. Component counts were estimated based on 40 CFR 98, Subpart W, Table W-1B.

3.7 Internal Combustion Engine

The generator engine emissions were calculated using manufacturer supplied data and AP-42 emission factors and pipeline quality natural gas as fuel.

3.8 Combustor/Combustion Device

Combustor emissions were calculated using the tank emissions routed to the combustor as fuel. A minimum 98% destruction efficiency was used to calculate VOC emissions and AP-42 Section 13 emission factors for criteria pollutants.

4.0 FEDERAL RULE APPLICABILITY ANALYSIS

The following section addresses the applicability the eight Federal Standards included in the Oil and Natural Gas FIP for Indian Country.

The facility is not located within a designated non-attainment area for purposes of determining Federal Non-Attainment New Source Review permitting applicability, the Facility is not an existing major source for purposes of evaluating the applicability of Prevention of Significant Deterioration (PSD) review requirements.

4.1 New Source Performance Standards (40 CFR Part 60)

Subpart IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

This subpart is not applicable, there are no compression ignition internal combustion engines at the site.

Subpart JJJJ: Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

This subpart is applicable to spark ignited (SI) internal combustion engines manufactured after July 1, 2007. The 300-hp natural-gas-fired, lean-burn engine was manufactured after the applicability date and will be subject to the provisions of this subpart. The engine is certified by the manufacturer as meeting the emissions requirements of Subpart JJJJ.

Subpart Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984

This subpart does not apply to the storage tanks because they are used to store petroleum or condensate prior to custody transfer, and the design capacity of each tank does not exceed 1,589.874 m³ (3,061,721 gallons) according to 40 CFR §60.110b(d)(4).

Subpart KKKK: Standards of Performance for New Stationary Combustion Turbines

There are no stationary combustion turbines located at the site; therefore, this subpart does not apply.

Subpart OOOOa: Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution

The site is subject to this subpart since the well was initially completed, pneumatic controllers and storage tanks installed after the September 18, 2015 applicability date. Therefore; the site will comply with the applicable requirements of 40 CFR of this subpart for the well, oil storage tanks, controls and facility leak detection and repair.

4.2 National Emission Standards for Hazardous Air Pollutants (40 CFR Part 63)

Subpart DDDDD: National Emission Standards for Major Sources: Industrial, Commercial and Institutional Boilers and Process Heaters

The site is not a major source therefore the site is not subject to this subpart.

Subpart HH: National Emissions Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities

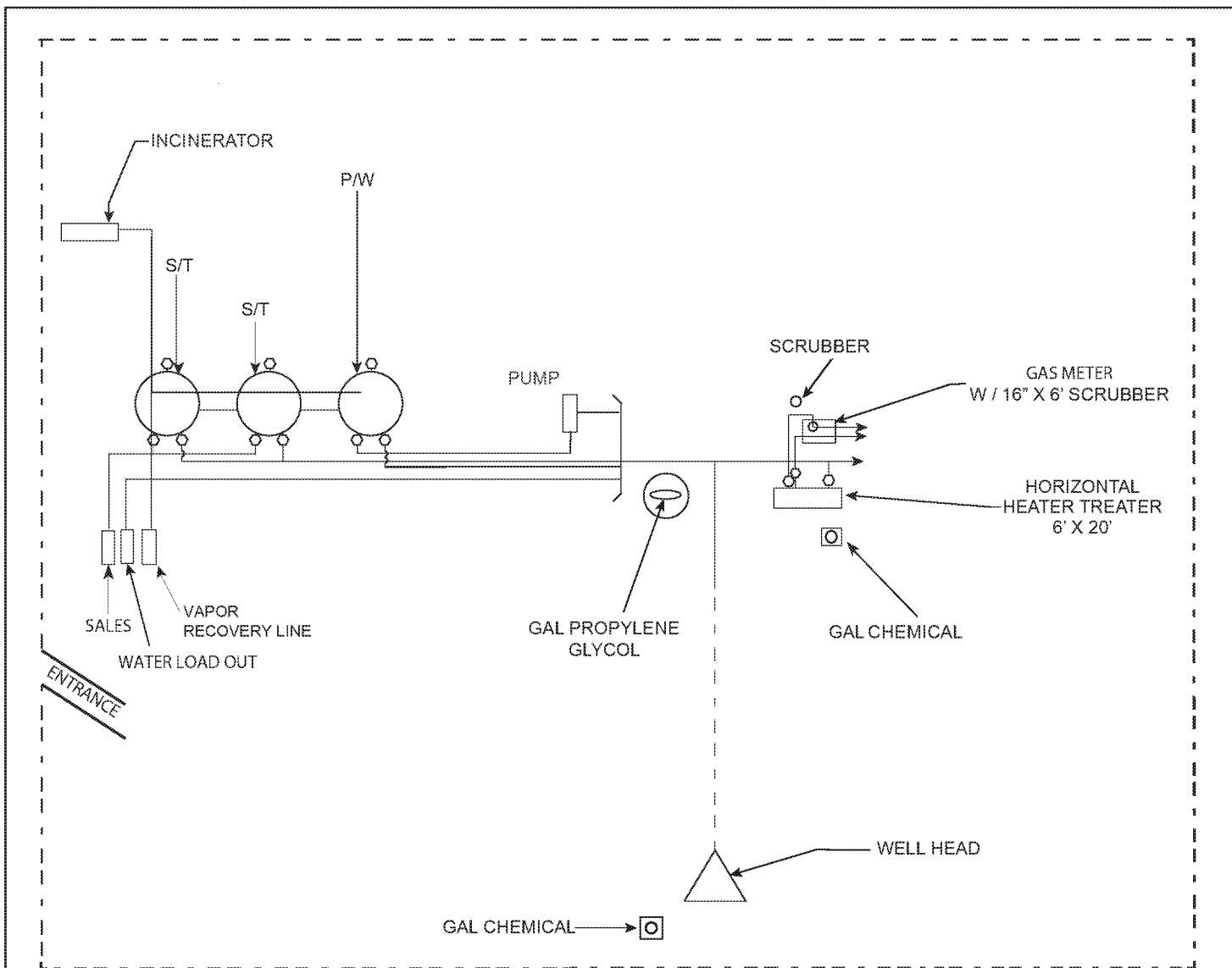
The facility does not have a TEG dehydration unit. Therefore, the facility is not subject to this subpart according to 40 CFR §63.760(b)(2).

Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

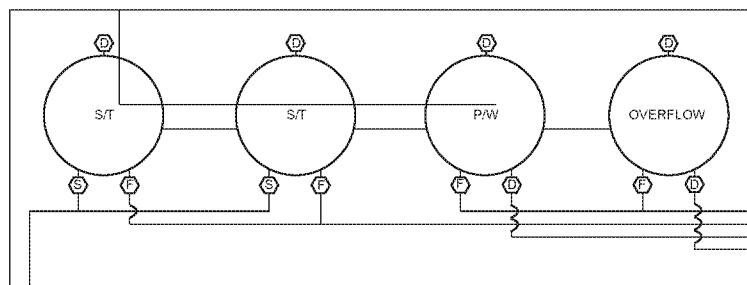
The natural-gas-fired compressor engine is a new stationary reciprocating internal combustion engine (RICE) at an area source of HAP emissions, as defined in 40 CFR §63.6590(c)(1). As specified in 40 CFR §63.6590(c)(1), the engine will meet the requirements of this subpart by meeting the requirements of 40 CFR 60, Subpart JJJJ.

APPENDIX A

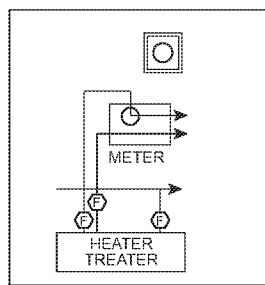
Process Flow Diagram and Site Plan



SITE PLAN
N.T.S.



Valve Detail A
N.T.S.



Valve Detail B
N.T.S.

LEGEND:

- ABOVE GROUND LINES
- - - BURIED LINES PROPERTY
- - - LINE

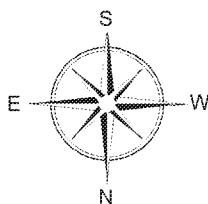
P/W PRODUCED Water

S/T = CRUDE OIL

BBL = BARRELS

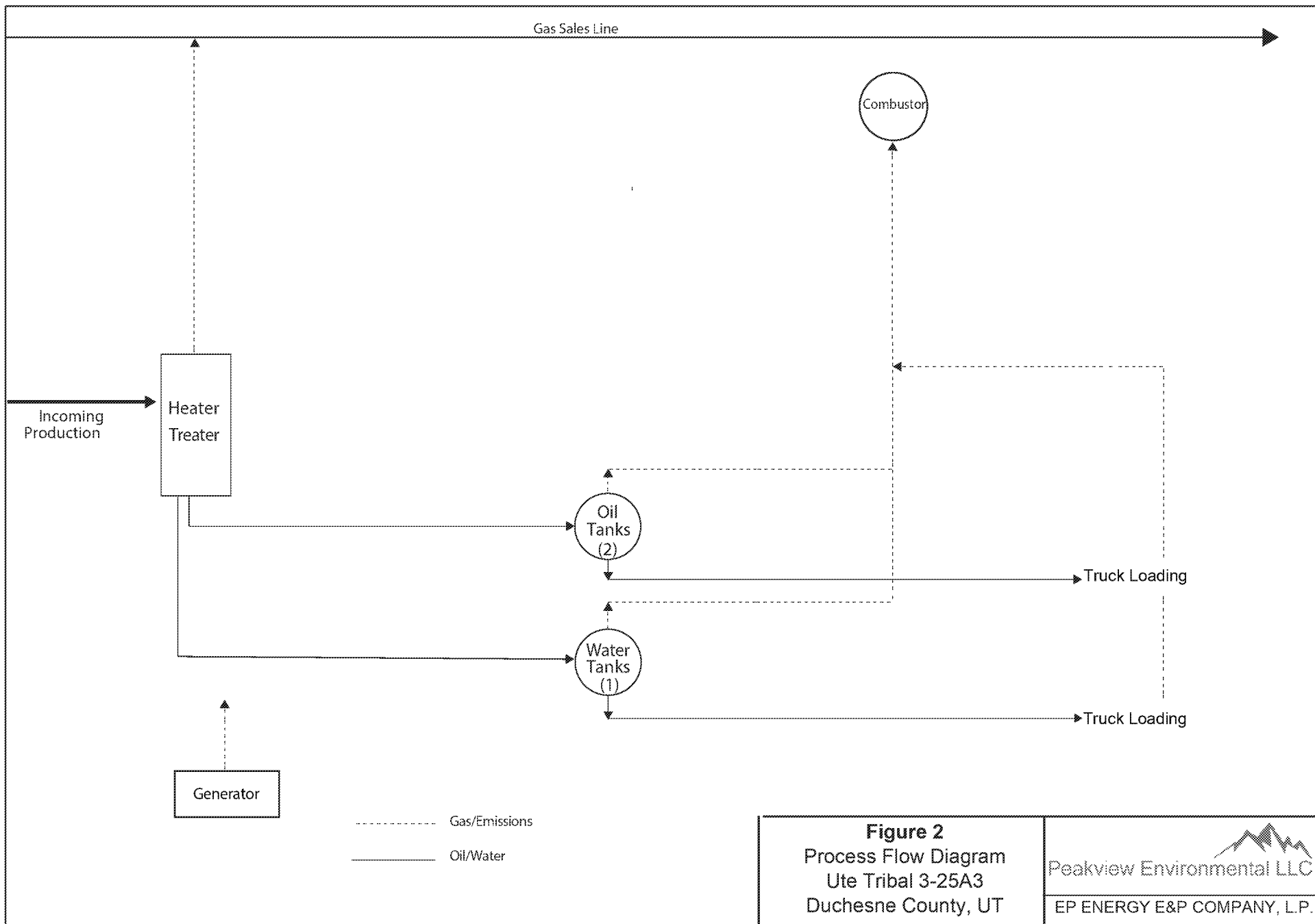
GAL = GALLONS

*OVERFLOW, SCRUBBER
HEATER TREATER CONTAIN
CRUDE OIL AND
PRODUCED WATER



0000a Site Map UTE
TRIBAL 3-25A3
NENW S25 T1S, R3W
LAT 40.37176 LONG -110.17520
DUCESNE COUNTY, UT


Peakview Environmental LLC
EP ENERGY E&P COMPANY, LP NOV 2018



APPENDIX B

Emission Calculations

Oil Storage Tanks Flash Emissions - GOR Method
Routed to to Combustor
EP Energy E&P Company L.P.
Ute Tribal 3-25A3

Site Information

Oil Production ¹	BOPD	576
VRU Operation (NO VRU)		0%
Molecular Weight of Flash Gas	lb/lb-mol	50.95
GOR ²	scf/bbl	30.03
Flash Heat content	MMBtu/hr	2875

Hourly LP Flash Loss (scf/hr) ³	720.45
Annual LP Flash Loss (MMscf/yr) ⁴	6.31
Flash Emissions Heat Content (MMBtu/hr)	2.07
Flash Emissions Heat Content (MMBtu/yr)	18,145

Composition Data ²					Uncontrolled Emissions	
Pollutant	LP Flash mol%	MW	Molar Wt	LP Flash Wt%		
			lb/lb-mol gas		(lb/hr) ⁵	(ton/yr) ⁶
Oxygen	0.000	32.00	0.00	0.000	-	-
Carbon Dioxide	0.577	44.01	0.25	0.498	0.49	2.14
Hydrogen Sulfide	0.000	34.80	0.00	0.000	-	-
Nitrogen	2.472	28.01	0.69	1.359	1.33	5.83
Methane	15.558	16.04	2.50	4.898	4.79	21.00
Ethane	10.432	30.07	3.14	6.157	6.03	26.40
Propane	23.739	44.10	10.47	20.547	20.11	88.09
Iso-Butane	4.562	58.12	2.65	5.204	5.09	22.31
Butanes	16.622	58.12	9.66	18.961	18.56	81.29
iso-Pentane	5.218	72.15	3.76	7.389	7.23	31.68
Pentanes	10.688	72.15	7.71	15.135	14.81	64.89
n-Hexane	3.005	86.16	2.59	5.081	4.97	21.78
Other Hexanes	1.699	86.16	1.46	2.873	2.81	12.32
Heptanes +	4.672	100.20	4.68	9.189	8.99	39.40
Benzene	0.664	78.11	0.52	1.018	1.00	4.36
Toluene	0.395	92.13	0.36	0.715	0.70	3.07
Ethylbenzene	0.081	106.17	0.09	0.168	0.16	0.72
Xylenes	0.323	106.17	0.34	0.674	0.66	2.89
2,2,4-Trimethylpentane	0.060	114.23	0.07	0.134	0.13	0.57
Total Volatile Organic Compounds	71.73			87.09	85.25	373.38
Total HAPs					7.63	33.40
Totals	100.77		50.95	100.0		

Uncontrolled

GHG	GWP	Emission Factor		Emissions	
		Wt%	Source	tons/yr	CO ₂ e ⁷
CO ₂	1	0.5	⁷	2	2
CH ₄	25	4.9	⁷	21	525
Total		-	-	-	527

¹ Daily production= BOPD + 1% BOPD for PW emissions

² From Precision Analysis Lab Id 16060602-01,6/22/16 Gas Evolved from Flashed Hydrocarbon From 83 psig and 155F to 80F to 14.73 psi and 60F

³ Hourly Flash Loss (scfh) = GOR (scf/bbl) x Throughput (bbl/day) / 24 (hr/day)

⁴ Yearly Flash Loss (MMscf/yr) = Hourly Flash Loss (scfh) x 8760 (hr/yr) / 10⁶

⁵ Uncontrolled Emissions (lb/hr) = Hourly Flash Loss (scf/hr) x Mol% x MW (lb/lb-mol) / 375 (scf/lb-mol)

⁶ Uncontrolled Emissions (ton/yr) = Hourly Flash Loss (scfh) x Mol% x MW (lb/lb-mol) / 375 (scf/gas/lb-mol)

*8760 hrs/yr*1 ton/2000 lb

⁷ Total GHG in CO₂e (tpy) calculated using Global Warming Potential from 40 CFR 98 Subpart A, Table A-1

Oil Storage Tanks Working and Standing Emissions
Routed to Combustor
EP Energy E&P Company L.P.
Ute Tribal 3-25A3

Site Information

Oil Production ¹	bbls/year	210,162	Vapor Density (lb/cu.ft) ⁴	0.01
Oil Production	gals/year	8,826,796	Hourly W&S loss (scf/hr) ⁷	152.3
VRU Operation (NO VRU)		-	Annual W&S loss (MMscf/yr) ⁷	3.8
Molecular Weight of W&S gas ⁴	lb/lb-mol	69.0	Heat Content (MMBtu/hr)	0.3
Reid Vapor Pressure ²		6.14	Heat Content (MMBtu/yr)	0.0
W&S Emissions Heat Content ³	MMBtu/scf	0.0		
Total Site Annual W&S Losses ⁴	lb/yr	18,218.4		
Total Hourly Losses ⁵	lb/hr	2.08		
Total Annual Losses ⁶	ton/yr	9.11		

Composition Data ³		Uncontrolled Emissions	
Pollutant	Stable Oil Vapor Wt%	(lb/hr) ⁸	(ton/yr) ⁹
Oxygen	0.000	-	-
Carbon Dioxide	0.000	-	-
Hydrogen Sulfide	0.000	-	-
Nitrogen	0.104	0.00	0.01
Methane	5.155	0.11	0.47
Ethane	21.520	0.45	1.96
Propane	33.286	0.69	3.03
Iso-Butane	7.911	0.16	0.72
Butanes	19.887	0.41	1.81
iso-Pentane	3.683	0.08	0.34
Pentanes	3.057	0.06	0.28
n-Hexane	1.077	0.02	0.10
Other Hexanes	1.788	0.04	0.16
Heptanes +	1.921	0.04	0.18
Benzene	0.156	0.00	0.01
Toluene	0.124	0.00	0.01
Ethylbenzene	0.077	0.00	0.01
Xylenes ¹¹	0.119	0.00	0.01
2,2,4-Trimethylpentane	0.134	0.00	0.01
Total Volatile Organic Compounds	73.2207	1.52	6.67
Total HAPs		0.04	0.15
Totals	100.000		

Uncontrolled

GHG	GWP	Emission Factor		Emissions	
		Wt%	Source	tons/yr	CO ₂ e ¹¹
CO ₂	1	0.0	¹⁰	0	0
CH ₄	25	5.2	¹⁰	0	12
Total		-	-	-	12

¹ Annual production = Barrels of oil per year + 1% *BOPY (to account for produced water emissions)

² From Precision Analysis Lab Id 16060602-1 6/22/16 Gas Evolved from Flashed Hydrocarbon

From 83 psig and 155F to 80F to 14.73 psi and 60F

³ From Promax stock tank emissions composition

⁴ From TANKS v.4.09d Output Report

⁵ Total Hourly Losses = Total Annual Losses (lb/yr)/8760 hrs/yr

⁶ Total Annual Losses (ton/yr) = Total annual losses (lb/yr)/2000 lb/ton

⁷ Tank emission volumetric flow rates are obtained by dividing total emissions by the vapor density

⁸ lb/hr emissions = Total working and standing losses (lb/hr)* stable oil vapor wt%/100

⁹ ton/yr emissions = Total working and standing losses (ton/yr)* stable oil vapor wt%/100

¹⁰ Stable oil vapor wt%

¹¹ Total GHG in CO₂e (tpy) calculated using Global Warming Potential from 40 CFR 98 Subpart A, Table A-1

Heater Emissions

EP Energy E&P Company L.P.

Ute Tribal 3-25A3

Site Information

Heater Rating ¹	MMBtu/hr	7.5
Annual Hours of Operation	hr/yr	8,760
Fuel Heating Value ²	Btu/scf	1,200
Fuel Sulfur Content ³	grain/scf	5,788

Pollutant	Emission Factor		Emissions ⁵	
	EF (lb/10 ⁶ SCF)	AP-42 Source ⁴	lb/hr	tons/yr
NOx	100	Table 1.4-1	0.63	2.74
CO	84	Table 1.4-1	0.53	2.30
SO ₂	0.17	Table 1.4-2	1.1E-03	4.7E-03
PM ₁₀	7.6	Table 1.4-2	0.05	0.21
VOC	5.5	Table 1.4-2	0.03	0.15
Benzene	2.10E-03	Table 1.4-3	1.31E-05	5.75E-05
Hexane	1.8	Table 1.4-3	1.13E-02	4.93E-02
Formaldehyde	7.5E-02	Table 1.4-3	4.69E-04	2.05E-03
Toluene	3.4E-03	Table 1.4-3	2.13E-05	9.31E-05
Total HAPs			1.18E-02	5.15E-02

GHG	GWP	Emission Factor		Emissions	
		EF (lb/10 ⁶ scf)	Source	tons/yr	CO ₂ e ⁶
CO ₂	1	1.20E+05	Table 1.4-2	3,285	3,285
CH ₄	25	2.3	Table 1.4-2	0.1	2
N ₂ O	298	2.2	Table 1.4-2	0.1	18
Total		-	-	-	3,305

¹ Aggregate of all natural-gas fired heaters at the site

² Fuel heat content based on AP-42 pipeline spec

³ AP-42 assumes a fuel sulfur content of 2000 grains/10⁶; emission factor scaled by ration of actual sulfur content to 2,000 grains/10⁶ scf. Fuel does not contain sulfur so assume MDL.

⁴ Emission factors (EF) are from AP-42 Section 1.4

⁵ Emissions; lb/hr = EF*heater rating (mmBTU/hr)/heat content of fuel(Btu/scf); tons/yr= emissions (lb/hr) * 8760 hrs/yr*1 ton/2000 lbs

⁶ Total GHG in CO₂e (tpy) calculated using Global Warming Potential from 40 CFR 98 Subpart A, Table A-1

IC Engine Emissions
EP Energy E&P Company L.P.
Max's Place LLC 2-24B1

Engine Data

Manufacturer	Portable Power
Model	NG200-01P
Serial Number	
Manufacture Date	After 2011
Application	electric gen
Ignition/injection timing	Variable
Horsepower	300
Site Rated Horsepower	300
Fuel Consumption (Btu/hp-hr)	7,404
Hours of operation per year	8760
Engine Type	4 Stroke Lean-

Fuel Data

Fuel Heat Content ² (Btu/scf)	1,200
Fuel Sulfur Content ³ (grain/scf)	5788.0
Annual Consumption (MMScf/yr)	16.2
Hourly Consumption (MMscf/hr)	0.0019
Hourly Consumption (MMBtu/hr)	2.22

Method of Emission Control

NSCR Catalyst	No
SCR Catalyst	No
JLCC Catalyst	No
Parameter Adjustment	No
Stratified Charge	No
Other(Specify)	AFRC
Lean Burn	Yes

Federal Standards

NSPS Subpart JJJJ	Yes
MACT Subpart ZZZZ	No

Exhaust Parameters

Stack Height (ft)	15
Stack Diameter (ft)	0.5
Exit Velocity (fps)	105.8
Stack Temperature (°F)	1350
scf/hr	74820

		EF AP-42			Uncontrolled Emissions ³		Controls		Controlled Emissions ⁵		Engine Information			
Contaminant	Test results or manufacturer's EF before control (g/hp-hr)	Table 3.2-2 4 stroke, lean-burn engine emission factors (lb/mmBtu)	Emission Factor Used	Units	Emissions (lb/hr)	Emissions (tpy)	Efficiency of Control Device (%)	Control Emission factor ⁴ (g/hp-hr)	Emissions (lb/hr)	Emissions (tpy)	MW ¹¹	ppmv ⁸ (20%)	ppmv ⁹ (15%)	Conc ¹⁰ (vol %)
VOC	0.70	0.118	0.70	g/hp-hr	0.46	2.03			0.46	2.03	44.10	53.97	353.82	0.04
NOx	1.0	4.08	1.0	g/hp-hr	0.66	2.89			0.66	2.89	33.2	102.42	671.40	0.07
CO	2.0	0.317	2.0	g/hp-hr	1.32	5.79			1.32	5.79	28.00	242.87	1592.17	0.16
PM10 ¹		0.0099871	0.0100	lb/mmBtu	0.02	0.10			0.02	0.10				
PM2.5 ¹		0.0099871	0.0100	lb/mmBtu	0.02	0.10			0.02	0.10				
SO2		0.000588	0.0006	lb/mmBtu	0.00	0.01			0.00	0.01	64.00	0.11	0.69	0.00
Formaldehyde		0.0528	0.0528	lb/mmBtu	0.12	0.51			0.12	0.51	30.03	20.10	131.74	0.01
Benzene		0.000404	0.0004	lb/mmBtu	0.00	0.00			0.00	0.00	78.11	0.06	0.39	0.00
Acetaldehyde		0.00836	0.0084	lb/mmBtu	0.02	0.08			0.02	0.08	44.05	2.17	14.22	0.00
Acrolein		0.00514	0.0051	lb/mmBtu	0.01	0.05			0.01	0.05	56.06	1.05	6.87	0.00
Methanol		0.0025	0.0025	lb/mmBtu	0.01	0.02			0.01	0.02	32.04	0.89	5.85	0.00
Total HAPS					0.15	0.67			0.15	0.67				

¹PM₁₀ EF = PM₁₀ (filterable) + PM (Condensable); PM_{2.5} EF = PM_{2.5} (filterable) + PM (Condensable)

²AP-42 Pipeline quality gas spec

³ Emissions (lb/hr)= EF(g/hp-hr)/454 g/lb*hp; or EF(g/mmBTU)*fuel consumption (Btu/hp-hr)*hp/1.0*10^6

Emissions (tpy) = emissions (lb/hr)*8760 hr/yr/2000 lb/ton

⁴ Provided by manufacturer or field adjustment

⁵Controlled emissions are calculated using efficiency of control device(%) or controlled emission factor

GHG	GWP	Emission Factor ⁶		CO2e Emissions	
		kg/mmBTU	g/hp-hr	tpy	CO ₂ e ⁷
CO ₂	1	53.06	393	1,136	1,136
CH ₄	25	0.0010	0.010	0.02	1
N ₂ O	298	0.0001	0	0.00	1
Total		-	-	-	1,137

⁶ Emission factors from 40 CFR 98, Subpart C, Table C-1 and C-2

⁷Total GHG in CO2e (tpy) calculated using Global Warming Potential from 40 CFR 98 Subpart A, Table A-1

⁸ ppmv (20%) = lb/hr*1x10⁶ *385 ft3/mw/vol flow rate (ft³/hr)

⁹ ppmV (15%) = ppmv(20%) *(20.9-15/20.9-20)

¹⁰1% vol = 10,000 ppmv

¹¹ Assume mw of VOC = mw propane

Pneumatic Controller Emissions
EP Energy E&P Company L.P.
Ute Tribal 3-25A3

Site Information

Type of Controllers	Intermittent
Actuation Gas	Natural Gas
# of Controllers	4
Average Hours per Controller	196
EF ¹ (VOC tons/hr)	7.97E-05

¹ From UDAQ 2014 UBEI Workbook, Pneumatic Controller Tab, Intermittent Controller VOC Emission Factor

Equation

$$\begin{aligned}\text{VOC Emissions (tpy)} &= \text{\# controllers} * \text{avg operating hour per controller} * \text{EF} \\ &= \boxed{0.06}\end{aligned}$$

Fugitive Emissions

EP Energy E&P Company L.P.

Ute Tribal 3-25A3

Equations¹

$$E_{gas} = \sum i \sum j Q_{fug,i,j} \times n_i \times t_{annual}$$

$$E_c = f_c \times E_{gas}$$

Site Information

$Q_{fug,i,j}$ =Measured/estimated fugitive emissions rate of gas from component (i) in service (j) (lb gas/ component-hr)

Service Type =

Flash Gas²

Conversion factor (scf/lb-mol) =

379.48

f_{nH} = mass fraction of n-hexane =

5.08

MW=molecular weight (lb/lb-mol) =

50.95

f_{Bz} = mass fraction of benzene =

1.02

f_{voc} =VOC mass fraction =

87.09

f_{Tl} = mass fraction of toluene =

0.72

f_{co2} = mass fraction CO2

0.5

f_{Eb} = mass fraction of ethylbenzene =

0.17

f_{CH4} = ass fraction CH4

4.9

f_{Xv} = mass fraction of xylene =

0.67

t_{annual} = annual usage for component

8760

f_{tmp} = mass fraction of 2,2,4-TMP =

0.13

Component Count - Light Oil Service³

Equipment	Number	Valves	Flanges	Connectors	OE Lines	Pump Seals	Other
Wells	1	5	10	4	0	0	1
Separator	0	0	0	0	0	0	0
Heater Treater	1	8	12	20	0	0	0
Header	1	5	10	4	0	0	0
Total Components		18	32	28	0	0	1

Light Oil (>20o) Fugitive Emissions

	Valves	Flanges	Connectors	OE Lines	Pump Seals	Other	Total Emissions	
							tons/yr	lbs/yr
Total Emissions (ton/yr)								
EF= scf/component-hr ¹	0.05	0.003	0.007	0.05	0.01	0.30		
lb/component-hr	6.71E-03	4.03E-04	9.40E-04	6.71E-03	1.34E-03	4.03E-02		
Total Emissions (ton/yr) ⁶	5.29E-01	5.65E-02	1.15E-01	0.00E+00	0.00E+00	1.76E-01	0.88	
GHG Emissions								
CO ₂ (ton/yr)	2.65E-03	2.82E-04	5.76E-04	0.00E+00	0.00E+00	8.82E-04	4.39E-03	8.77
CH ₄ (ton/yr)	2.59E-02	2.77E-03	5.65E-03	0.00E+00	0.00E+00	8.64E-03	4.30E-02	85.99
GHG CO ₂ e							9.98E-02	219.37
VOC Emissions								
VOC (ton/yr)	4.61E-01	4.92E-02	1.00E-01	0.00E+00	0.00E+00	1.54E-01	0.76	1528.26
HAP Emissions								
n-hexane (ton/yr)	2.69E-02	2.87E-03	5.86E-03	0.00E+00	0.00E+00	8.96E-03	4.46E-02	89.14
benzene (ton/yr)	5.40E-03	5.76E-04	1.18E-03	0.00E+00	0.00E+00	1.80E-03	8.95E-03	17.90
toluene (ton/yr)	3.81E-03	4.06E-04	8.30E-04	0.00E+00	0.00E+00	1.27E-03	6.32E-03	12.63
ethylbenzene (ton/yr)	8.89E-04	9.48E-05	1.94E-04	0.00E+00	0.00E+00	2.96E-04	1.47E-03	2.95
xylene (ton/yr)	3.55E-03	3.78E-04	7.72E-04	0.00E+00	0.00E+00	1.18E-03	5.88E-03	11.76
2,24-TMP (ton/yr)	7.09E-04	7.56E-05	1.54E-04	0.00E+00	0.00E+00	2.36E-04	1.18E-03	2.35
Total HAPs							0.07	136.73

¹ Equations and emission factors based on 40 CFR Part 98 Subpart W

² Composition based on hydrocarbon analysis of site-specific oil and gas samples

³ Component counts based on default values from 40 CFR Part 98 Subpart W; Table W-1C

⁴ CO₂e based on Global Warming Potentials from Table A-1 of 40 CFR Part 98

⁵ Total GHG in CO₂e (tpy) calculated using Global Warming Potential from 40 CFR 98 Subpart A, Table A-1

Truck Loading Emissions - Routed to Combustor
EP Energy E&P Company L.P.
Ute Tribal 3-25A3

Site Information

Loading Rate	BOPD	570
	gal/day	23944
	gal/hr	998
True VP of Liquid Loaded (P) ¹	psia	5
MW of Vapor (M) ²	lb/lb-mol	41.94
Temperature of liquid (T) ³	°R	619.67
Saturation Factor (S) ⁴	constant	0.6
Loading Losses ⁵ (L)	lb/1000 gal	2.53
Control Capture Efficiency	%	70%
Control Efficiency	%	98%

Composition Data ²		Uncontrolled Emissions ⁶		Uncaptured Emissions ⁸		Controlled Emissions ⁹		Total Emissions ¹⁰	
Pollutant	Stable Oil Vapor Wt%								
		(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
Oxygen	0.000	-	-	-	-	-	-	-	-
Carbon Dioxide	0.000	-	-	-	-	-	-	-	-
Hydrogen Sulfide	0.000	-	-	-	-	-	-	-	-
Nitrogen	0.104	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Methane	5.155	0.13	0.57	0.04	0.17	0.00	0.00	0.04	0.17
Ethane	21.520	0.54	2.38	0.16	0.71	0.00	0.01	0.17	0.73
Propane	33.286	0.84	3.68	0.25	1.10	0.01	0.02	0.26	1.13
Iso-Butane	7.911	0.20	0.87	0.06	0.26	0.00	0.01	0.06	0.27
Butanes	19.887	0.50	2.20	0.15	0.66	0.00	0.01	0.15	0.67
iso-Pentane	3.683	0.09	0.41	0.03	0.12	0.00	0.00	0.03	0.12
Pentanes	3.057	0.08	0.34	0.02	0.10	0.00	0.00	0.02	0.10
n-Hexane	1.077	0.03	0.12	0.01	0.04	0.00	0.00	0.01	0.04
Other Hexanes	1.788	0.05	0.20	0.01	0.06	0.00	0.00	0.01	0.06
Heptanes +	1.921	0.05	0.21	0.01	0.06	0.00	0.00	0.01	0.06
Benzene	0.156	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.005
Toluene	0.124	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.004
Ethylbenzene	0.077	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.003
Xylenes	0.119	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.004
2,2,4-Trimethylpentane	0.134	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.005
Total VOCs	73.22	1.85	8.09	0.55	2.43	0.01	0.05	0.57	2.48
Total HAPs		0.04	0.19	0.01	0.06	0.00	0.00	0.01	0.06
Totals	100.000								

				Uncontrolled	Controlled		
GHG	GWP	Emission Factor		Emissions			
		Wt%	Source	tons/yr	CO ₂ e ⁷	tons/yr	CO ₂ e ⁷
CO ₂	1	0	NA	0	0	0	0
CH ₄	25	5.2	NA	0.6	14	0.2	4
Total		-	-	-	14	0	4

⁰ Total loaded = BOPD + 1% BOPD to account for water loading

¹ From AP-42, Figure 7.1-13

² MW and composition based on Promax output

³ Temperature of liquids loaded = 160° F

⁴ From AP-42, Table 5.2-1, submerged loading

⁵ From AP-42, Section 5.2, equation 1; L=12.46*SPM/T

⁶ Emissions lb/hr = L (lb/1000 gal)*Loading rate (gal/hr)/1000 gal*wt%/100

Emissions ton/yr = emissions (lb/hr)*8760/2000

⁷ CO₂e based on Global Warming Potentials from Table A-1 of 40 CFR Part 98

⁸ Uncaptured emissions = uncontrolled emissions * (1-capture efficiency)

⁹ Controlled Emissions = uncontrolled loading * capture efficiency*(1-control efficiency)

¹⁰ Total emissions = uncaptured emissions + controlled emissions

Combustor Emissions
EP Energy E&P Company L.P.
Ute Tribal 3-25A3

Site Information

Heat Rating ¹	mmBtu/hr	7.7
Annual Hours of Operation	hr/yr	8,760
Fuel Heating Content ²	Btu/scf	2,875
Fuel Sulfur Content ²	grain/scf	0.0
Destruction Efficiency	%	98.0

Pollutant	Emission Factor		Emissions ³	
	EF (lb/MMBtu)	Source	lb/hr	tons/yr
NO ₂	0.068	AP-42 Table 13.5-1	0.52	2.29
CO	0.310	AP-42 Table 13.5-2	2.39	10.46
SO ₂	2.89E-04	³	2.23E-03	0.01
PM ₁₀	0.000	AP-42 Table 13.5-1	0.00	0.00
VOC	98% destruction ⁶	NA	1.74	7.60
CH ₄	98% destruction ⁶	NA	0.10	0.43
n-Hexane	98% destruction ⁶	NA	0.10	0.44
Benzene	98% destruction ⁶	NA	0.02	0.09
Toluene	98% destruction ⁶	NA	0.00	0.06
Xylenes	98% destruction ⁶	NA	0.01	0.06
Ethylbenzene	98% destruction ⁶	NA	0.00	0.01
2,2,4-Trimethylpentane	98% destruction ⁶	NA	0.00	0.01
Total HAP	98% destruction ⁶	NA	0.16	0.67

GHG	GWP	Emission Factor		Emissions	
		EF (kg/MMBtu)	Source	tons/yr	CO ₂ e ⁶
CO ₂	1	53.020	40 CFR 98-C	3,934	3,934
CH ₄	25	⁴	⁴	0.43	11
N ₂ O	298	0.0001	40 CFR 98-C	0.007	2
Total		-	-	-	3,947

¹ Maximum rating of combustor ; equipment specifications

² From Precision Analysis Lab Id 16060602--01,6/22/16 Gas Evolved from Flashed Hydrocarbon From 83 psig and

³ MDL for H₂S; assumed to be 100% conversion from H₂S to SO₂

⁴ Actual wt% in fuel stream *(1-.98)

⁵ Emissions (lb/hr) = EF*7.7 mmBTU/hr; Emissions (tons/yr)= emissions (lb/hr) * 8760 hrs/yr*1 ton/2000 lbs

⁶ Total GHG in CO₂e (tpy) calculated using Global Warming Potential from 40 CFR 98 Subpart A, Table A-1

Criteria Pollutants Emissions Summary
EP Energy E&P Company L.P.
Ute Tribal 3-25A3

Uncontrolled PTE

Pollutant (TPY)	VOC	CO	NO_x	SO₂	PM	PM₁₀	PM_{2.5}
Oil Storage Tanks	380.05	-	-	-	-	-	-
Truck Loading	8.09	-	-	-	-	-	-
Heaters (≤7.5 MMBtu/hr total)	0.15	2.30	2.74	0.00	0.42	0.21	0.21
Natural Gas Fired Gen Engine	2.03	5.79	2.89	0.01	0.19	0.10	0.10
Pneumatic Controllers	0.06	-	-	-	-	-	-
Fugitives	0.76	-	-	-	-	-	-
Total	391.15	8.09	5.63	0.01	0.61	0.31	0.31

Controlled PTE

Pollutant (TPY)	VOC	CO	NO_x	SO₂	PM	PM₁₀	PM_{2.5}
Oil Storage Tanks	<i>Routed to Combustor</i>						
Truck Loading	2.48	-	-	-	-	-	-
Heaters (≤7.5 MMBtu/hr total)	0.15	2.30	2.74	0.00	0.42	0.21	0.21
Natural Gas Fired Gen Engine	2.03	5.79	2.89	0.01	0.19	0.10	0.10
Pneumatic Controllers	0.06	-	-	-	-	-	-
Fugitives	0.76	-	-	-	-	-	-
Combustor	7.60	10.46	2.29	0.01	0.00	0.00	0.00
Total	13.08	18.54	7.93	0.02	0.61	0.31	0.31

CO₂e Emissions Summary
EP Energy E&P Company L.P.
Ute Tribal 3-25A3

CO₂e Uncontrolled PTE

GHG (TPY)	CO₂	CH₄	N₂O	Total
<i>Global Warming Potential</i>	<i>1</i>	<i>25</i>	<i>298</i>	<i>-</i>
Oil Storage Tanks	2.14	21.47	0.00	23.60
Truck Loading	0.00	0.57	0.00	0.57
Heaters (≤7.5 MMBtu/hr total)	3285	0.06	0.06	3285
Natural Gas Fired Gen Engine	1136	0.02	0.00	1136
Pneumatic Controllers	-	-	-	-
Fugitives	0.00	0.04	-	0.05
Total Mass (TPY)	4,423	22	0.1	4,445
CO₂e (tpy)	4,423	554	19	4,996

CO₂e Controlled PTE

GHG (TPY)	CO₂	CH₄	N₂O	Total
<i>Global Warming Potential</i>	<i>1</i>	<i>25</i>	<i>298</i>	<i>-</i>
Oil Storage Tanks	<i>Routed to Combustor</i>			
Truck Loading	0.00	0.17	0.00	0.17
Heaters (≤7.5 MMBtu/hr total)	3285	0.06	0.06	3285
Natural Gas Fired Gen Engine	1136	0.02	0.00	1136
Pneumatic Controllers	-	-	-	-
Fugitives	0.00	0.04	-	
Combustor	3934	0.43	0.01	3934
Total Mass (TPY)	8,355	0.7	0.1	8,355

HAPs Emissions Summary
EP Energy E&P Company L.P.
Ute Tribal 3-25A3

Uncontrolled PTE (TPY)

Pollutant (TPY)	n-Hexane	Benzene	Toluene	e-benzene	Xylenes	2,2,4-TMP	Formaldehyde	Acetaldehyde	Acrolein	Methanol	Total HAPs
Oil Storage Tanks	21.88	4.38	3.08	0.73	2.90	0.59	-	-	-	-	33.55
Truck Loading	0.12	0.02	0.01	0.01	0.01	0.01	-	-	-	-	0.19
Heaters (≤7.5 MMBtu/hr total)	0.05	0.00	0.00	-	-	-	-	-	-	-	0.05
Natural Gas Fired Gen Engine		0.00	-	-	-	-	0.51	0.08	0.05	0.02	0.67
Pneumatic Controllers	-	-	-	-	-	-	-	-	-	-	-
Fugitives	0.04	0.01	0.01	0.00	0.01	0.00	-	-	-	-	0.07
Total	22.10	4.41	3.10	0.74	2.92	0.60	0.51	0.08	0.05	0.02	34.5

Controlled PTE (TPY)

Pollutant (TPY)	n-Hexane	Benzene	Toluene	e-benzene	Xylenes	2,2,4-TMP	Formaldehyde	Acetaldehyde	Acrolein	Methanol	Total HAPs
Oil Storage Tanks	<i>Routed to Combustor</i>										
Truck Loading	0.04	0.01	0.00	0.00	0.00	0.00	-	-	-	-	0.06
Heaters (≤7.5 MMBtu/hr total)	0.05	0.00	0.00	-	-	-	-	-	-	-	0.05
Natural Gas Fired Gen Engine	-	0.00	-	-	-	-	0.51	0.08	0.05	0.02	0.67
Pneumatic Controllers	-	-	-	-	-	-	-	-	-	-	-
Fugitives	0.04	0.01	0.01	0.00	0.01	0.00	-	-	-	-	0.07
Combustor	0.44	0.09	0.06	0.01	0.06	0.01	-	-	-	-	0.67
Total	0.57	0.11	0.07	0.02	0.07	0.01	0.51	0.08	0.05	0.02	1.52

HAPs Hourly Maximum Emission Rate

Pollutant (lb/hr)	n-hexane	Benzene	Toluene	e-benzene	Xylenes	2,2,4-TMP	Formaldehyde	Acetaldehyde	Acrolein	Methanol	Total HAPs
Oil Storage Tanks	<i>Routed to Combustor</i>										
Truck Loading	0.03	0.00	0.00	0.00	0.00	0.00	-	-	-	-	0.06
Heaters (≤7.5 MMBtu/hr total)	0.01	0.00	0.00	-	-	-	-	-	-	-	0.01
Natural Gas Fired Gen Engine	-	0.00	-	-	-	-	0.12	0.02	0.01	0.01	0.15
Fugitives	0.04	0.01	0.01	0.00	0.01	0.00	-	-	-	-	0.07
Combustor	0.10	0.02	0.00	0.00	0.01	0.00	-	-	-	-	0.14

Laboratory Analytical Report
Promax Output
TANKS4.09d Report



GAS MEASUREMENT

EMISSIONS TESTING

LABORATORY

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Flash Liberation of Hydrocarbon Liquid Study

Client: LT Environmental **Sample Lab ID:** 16060602-01
Site Name: Powell 2-13 A2 **Analyst:** AP
Unique Number: Not Indicated **Date Analyzed:** 06/22/16
Date Sampled: 06/17/16
State: UT **Site Notes:**
County: Duchesne

Flash Liberation of Hydrocarbon Liquid Conditions

	Pressure (psig)	Temperature (°F)
Separator Hydrocarbon Liquid	83.0	155.0
Stock Tank	80.0	160.0

Base Conditions

	Pressure (psi)	Temperature (°F)
Base Conditions	14.73	60

Flash Liberation of Hydrocarbon Liquid Results

Parameter	Result	Units/Description
Gas Oil Ratio	30.03	SCF flashed vapor/bbl stock tank oil
Gas Specific Gravity	1.770	Air = 1.000
Separator Volume Factor	1.001	Separator Volume/Stock tank Volume

Stock Tank Fluid Properties

Parameter	Result	Units/Description
Shrinkage Recovery Factor	0.999	Fraction of first stage separator liquid
Oil API Gravity at 60 °F	31.94	
Oil API Gravity, observed	33.44	at 83°F
Reid Vapor Pressure, psi	6.14	Absolute Pressure at 100°F by D5191

Quality Control Summary

Duplicate Results	% Difference	Acceptable Range
Gas Oil Ratio	3.3	<5%
Separator Volume Factor	0.003	<5%
Shrinkage Recovery Factor	0.003	<5%
Cylinder Type	Liquid Displacement	
Sample Collection Rate (mL/min)	50	<60

Cylinder Pressure Check

	Pressure (psi)	Temperature (°F)
Sample Conditions	83.0	155.0
Test Sample	30.0	150.0



GAS MEASUREMENT

EMISSIONS TESTING

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Gas Evolved from Flashed Hydrocarbon Liquid

Run File: C:\Galaxie\data\16_06_22\16060602-011.DAT
Method: S2_ExtBTEX
Operator: AP **Analysis Date:** 6/22/2016
Client: LT Environmental **Date Sampled:** 6/22/2016
Site Name: Powell 2-13 A2 **Purpose:** Flash Gas Analysis
Unique #: Not Indicated **Pressure:** Ambient
Sample Temperature: 70°F **Type Sample:** Spot
Sampled by: AP **County:** Duchesne

COMPONENT	MOLE %	GPM
Hydrogen Sulfide	0.000	0.000
Nitrogen (N2)	2.472	
Carbon Dioxide	0.577	
Methane (CH4)	15.557	
Ethane (C2)	10.432	2.783
Propane (C3)	23.740	6.524
iso-Butane (i-C4)	4.562	1.489
Butane (C4)	16.620	5.226
iso-Pentane (i-C5)	5.218	1.903
Pentane (C5)	7.472	2.702
Hexanes	7.054	0.676
Heptanes Plus	6.297	4.768
Totals	100.000	26.070

Specific Gravity 1.770
Compressibility (Z) 0.9732
Molecular Weight 50.95

Saturated Ideal BTUs 2749.1 Saturated Real BTUs 2824.8

Dry Ideal BTUs 2797.8 Dry Real BTUs 2874.9

Base Conditions: 14.73 psi 60 °F

Gas Evolved from Flashed Hydrocarbon Liquid Extended Analysis Report

COMPONENT	MOLE %	BTU	GPM	WT %
Hydrogen Sulfide	0.000	0.000	0.000	0.000
Nitrogen (N2)	2.472			1.359
Carbon Dioxide	0.577			0.498
Methane (CH4)	15.557	157.486		4.898
Ethane (C2)	10.432	185.042	2.783	6.157
Propane (C3)	23.740	598.701	6.524	20.547
iso-Butane (i-C4)	4.562	148.691	1.489	5.204
Butane (C4)	16.620	543.458	5.226	18.961
iso-Pentane (i-C5)	5.218	209.255	1.903	7.389
Pentane (C5)	7.472	300.227	2.702	10.581
2,2-Dimethylbutane	0.229	8.057	0.068	0.315
Cyclopentane	1.717	60.427	0.507	2.363
2,3-Dimethylbutane	0.343	12.085	0.101	0.473
2-Methylpentane	0.522	23.011	0.213	0.883
3-Methylpentane	0.308	13.549	0.125	0.520
n-Hexane	3.004	143.192	1.232	5.081
Methylcyclopentane	0.679	37.424	0.312	1.335
Benzene	0.664	23.887	0.185	1.018
Cyclohexane	0.579	24.271	0.197	0.957
2-Methylhexane	0.145	6.068	0.049	0.239
3-Methylhexane	0.207	8.668	0.070	0.342
2,2,4-Trimethylpentane	0.060	3.459	0.031	0.134
Other Heptanes (C7's)	1.131	62.373	0.520	2.224
n-Heptane	0.452	24.949	0.208	0.890
Methylcyclohexane	0.537	26.199	0.215	1.036
Toluene	0.395	16.936	0.132	0.715
Other Octanes (C8's)	0.386	24.184	0.197	0.866
n-Octane	0.208	13.022	0.106	0.466
Ethylbenzene	0.080	4.006	0.031	0.168
m,p-Xylene	0.270	13.429	0.105	0.563
o-Xylene	0.053	2.638	0.021	0.111
Other Nonanes (C9's)	0.350	24.575	0.197	0.882
n-Nonane	0.189	13.233	0.106	0.475
Other Decanes (C10's)	0.589	45.723	0.361	1.645
n-Decane	0.168	13.064	0.103	0.470
Undecanes (C11)	0.084	6.532	0.052	0.235
Totals	100.000	2797.8	26.070	100.000

Specific Gravity 1.770
Compressibility (Z) 0.973
Molecular Weight 50.948

Saturated Ideal BTUs 2749.1 Saturated Real BTUs 2824.8

Dry Ideal BTUs 2797.8 Dry Real BTUs 2874.9

Base Conditions: 14.73 psi 60 °F



GAS MEASUREMENT EMISSIONS TESTING LABORATORY
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**EXTENDED HYDROCARBON LIQUID STUDY
CERTIFICATE OF ANALYSIS**

Company: **LT Environmental** Sample Name: **Powell 2-13 A2 Pressurized Liquid**

Sample Date: 6/17/2016 Sample Number: 16060602-01

Sample Facility: Not Indicated Date Tested: 6/22/2016

Sample Equipment: Treater Vessle Test Method: GPA 2186M

Sample Location: Duchesne Date Reported: 6/22/2016

Sample Pressure: 81 PSIG

Sample Temperature: 155°F

Sampling Method: GPA-2174

Type Sample: Spot

Components	Mole %	Weight %	Liq. Vol. %
Carbon Dioxide	0.000	0.000	0.000
Nitrogen	0.047	0.006	0.006
Methane	1.387	0.108	0.275
Ethane	0.901	0.132	0.282
Propane	1.657	0.355	0.534
iso-Butane	0.598	0.169	0.229
n-Butane	1.980	0.592	0.768
iso-Pentane	0.659	0.231	0.282
n-Pentane	0.698	0.245	0.296
2-Methylpentane	0.543	0.227	0.265
3-Methylpentane	0.217	0.091	0.106
Heptanes	1.432	0.698	0.785
Octanes	2.321	1.289	1.407
Nonanes	1.527	0.937	0.912
Decanes+	83.864	93.890	92.868
Benzene	0.144	0.055	0.047
Toluene	0.286	0.128	0.112
Ethylbenzene	0.392	0.203	0.177
m-Xylene	0.388	0.201	0.176
p-Xylene	0.063	0.032	0.028
o-Xylene	0.146	0.076	0.065
n-Hexane	0.595	0.249	0.286
2,2,4-Trimethylpentane	0.155	0.086	0.094
Totals	100.000	100.000	100.000

SAMPLE CHARACTERISTICS

RELATIVE SPECIFIC GRAVITY, calculated	0.76239
API GRAVITY AT 60/60 F, calculated	54.1
TRUE VAPOR PRESSURE AT 100 F, PSIA, calculated	83.856
AVERAGE MOLECULAR WEIGHT	205.670
AVERAGE BOILING POINT, F, calculated	477.926
RELATIVE SPECIFIC GRAVITY OF DECANES+ (C10+) FRACTION, calculated	0.76697
AVERAGE MOLECULAR WEIGHT OF DECANES+ (C10+) FRACTION, calculated	215.149
BTU / GALLON OF LIQUID AT 14.73 PSIA, calculated	59,364.49
LBS / GALLON OF LIQUID, calculated	6.356

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES
OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST
TO THE NATURAL GAS INDUSTRY.

Powell 2-13A2K
ProMax Emissions Output

Process Streams	Residual Oil	Working Breathing
Composition	From Block:	To Block:
Phase: Total	VSGL-100	
Mole Fraction	%	%
Nitrogen	0.047*	0.153049*
Methane	1.387*	13.2531*
Ethane	0.901*	29.5124*
Propane	1.657*	31.1336*
i-Butane	0.598*	5.61379*
n-Butane	1.98*	14.1122*
i-Pentane	0.659*	2.10557*
n-Pentane	0.698*	1.74756*
2-Methylpentane	0.543*	0.628189*
3-Methylpentane	0.217*	0.227722*
Heptane	1.432*	0.428482*
Octane	2.321*	0.243435*
Nonane	1.527*	0.0567254*
Benzene	0.144*	0.0824711*
Toluene	0.286*	0.0554282*
Ethylbenzene	0.392*	0.0298483*
m-Xylene	0.388*	0.0344221*
p-Xylene	0.063*	0.00427509*
o-Xylene	0.146*	0.00767785*
n-Hexane	0.595*	0.515504*
2,2,4-Trimethylpentane	0.155*	0.0485079*
decane+	83.864*	0.00601618*
Mass Fraction	%	%
Nitrogen	0.00682324*	0.103954*
Methane	0.115312*	5.15505*
Ethane	0.140401*	21.5163*
Propane	0.378656*	33.2865*
i-Butane	0.180123*	7.91119*
n-Butane	0.596395*	19.8876*
i-Pentane	0.246400*	3.68334*
n-Pentane	0.260982*	3.05706*
2-Methylpentane	0.242499*	1.31255*
3-Methylpentane	0.0969103*	0.475809*
Heptane	0.743612*	1.04100*
Octane	1.37397*	0.674221*
Nonane	1.01494*	0.176399*
Benzene	0.0582916*	0.156193*
Toluene	0.136563*	0.123827*
Ethylbenzene	0.215672*	0.0768323*
m-Xylene	0.213472*	0.0886058*
p-Xylene	0.0346616*	0.0110045*
o-Xylene	0.0803269*	0.0197635*
n-Hexane	0.265722*	1.07711*
2,2,4-Trimethylpentane	0.0917557*	0.134348*
decane+	93.5065*	0.0313837*

CO2 0

Methane 5.155* 0.05155046

wt% wt fraction

VOC 73.225* 0.73224669

B 0.156* 0.00156193

T 0.124* 0.00123827

E 0.077* 0.00076832

X 0.119* 0.00119374

n-hex 1.077* 0.01077106

2,2,4 0.134* 0.00134348

Powell 2-13A2K
ProMax Emissions Output

Mass Flow	lb/h	lb/h
Nitrogen	0.915517*	0.00417860*
Methane	15.4721*	0.207216*
Ethane	18.8385*	0.864887*
Propane	50.8067*	1.33801*
i-Butane	24.1683*	0.318004*
n-Butane	80.0221*	0.799416*
i-Pentane	33.0611*	0.148058*
n-Pentane	35.0177*	0.122884*
2-Methylpentane	32.5376*	0.0527604*
3-Methylpentane	13.0031*	0.0191260*
Heptane	99.7751*	0.0418450*
Octane	184.354*	0.0271015*
Nonane	136.181*	0.00709066*
Benzene	7.82136*	0.00627846*
Toluene	18.3236*	0.00497744*
Ethylbenzene	28.9381*	0.00308841*
m-Xylene	28.6428*	0.00356167*
p-Xylene	4.65077*	0.000442346*
o-Xylene	10.7780*	0.000794431*
n-Hexane	35.6536*	0.0432962*
2,2,4-Trimethylpentane	12.3114*	0.00540035*
decane+	12546.4*	0.00126152*

CO2	0	
Methane	0.207*	0.908*
		UNC
	lb/hr	tpy
VOC	2.943*	12.892*
B	0.006*	0.027*
T	0.005*	0.022*
E	0.003*	0.014*
X	0.005*	0.021*
n-hex	0.043*	0.190*
2,2,4	0.005*	0.024*

Process Streams		Residual Oil	Working Breathing
Properties	Status:	Residual Oil	Working Breathing
Phase: Total	From Block:
	To Block:	VSSL-188	..
Property	Units		
Temperature	°F	155*	124.242*
Pressure	psia	14.6959*	14.3998
Mole Fraction Vapor	%	3.37971	100*
Mole Fraction Light Liquid	%	96.6203	0
Mole Fraction Heavy Liquid	%	0	0
Molecular Weight	lb/lbmol	192.963	41.2436
Mass Density	lb/ft^3	9.99300	0.0958419
Molar Flow	lbmol/h	69.5349	0.0974619
Mass Flow	lb/h	13417.6	4.01968*
Vapor Volumetric Flow	ft^3/h	1342.70	41.9407
Liquid Volumetric Flow	gpm	167.402	5.22897
Std Vapor Volumetric Flow	MMSCFD	0.633297	0.000887645
Std Liquid Volumetric Flow	sgpm	35.3839	0.0168744
Compressibility		0.0430199	0.988887
Specific Gravity			1.42403
API Gravity			
Enthalpy	Btu/h	-1.02556E+07	-4205.73
Mass Enthalpy	Btu/lb	-764.334	-1046.29
Mass Cp	Btu/(lb*°F)	0.547772	0.438862
Ideal Gas CpCv Ratio		1.02345	1.12397
Dynamic Viscosity	cP		0.00928859
Kinematic Viscosity	cSt		6.05025
Thermal Conductivity	Btu/(h*ft*°F)		0.0130719
Surface Tension	lbf/ft		
Net Ideal Gas Heating Value	Btu/ft^3	9641.79	2167.61
Net Liquid Heating Value	Btu/lb	18810.5	19794.6
Gross Ideal Gas Heating Value	Btu/ft^3	10315.7	2357.90
Gross Liquid Heating Value	Btu/lb	20135.9	21545.4

bbl/day 1213.163717

TANKs 4.09d Emissions Report

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	400 bbl oil storage tank
City:	Altamont
State:	Utah
Company:	EP Energy E&P Company LP
Type of Tank:	Vertical Fixed Roof Tank
Description:	Ute Tribal 3-25A3

Tank Dimensions

Shell Height (ft):	20.00
Diameter (ft):	12.00
Liquid Height (ft) :	18.00
Avg. Liquid Height (ft):	16.00
Volume (gallons):	15,228.53
Turnovers:	286.94
Net Throughput(gal/yr):	4,369,701.00
Is Tank Heated (y/n):	Y

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition:	Good
Roof Color/Shade:	Gray/Light
Roof Condition:	Good

Roof Characteristics

Type:	Cone
Height (ft)	2.00
Slope (ft/ft) (Cone Roof)	0.26

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

Meteorological Data used in Emissions Calculations: Salt Lake City, Utah (Avg Atmospheric Pressure = 12.64 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

400 bbl oil storage tank - Vertical Fixed Roof Tank
Altamont, Utah

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 6)	All	76.56	66.71	86.42	70.88	4.0971	3.3681	4.9489	69.0000			92.00	Option 4: RVP=6, ASTM Slope=3

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

400 bbl oil storage tank - Vertical Fixed Roof Tank
Altamont, Utah

.....
Annual Emission Calculations

Standing Losses (lb):	1,042.1656
Vapor Space Volume (cu ft):	527.7876
Vapor Density (lb/cu ft):	0.0491
Vapor Space Expansion Factor:	0.2217
Vented Vapor Saturation Factor:	0.4967
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	527.7876
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	4.6667
Tank Shell Height (ft):	20.0000
Average Liquid Height (ft):	16.0000
Roof Outage (ft):	0.6667
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.6667
Roof Height (ft):	2.0000
Roof Slope (ft/ft):	0.2600
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0491
Vapor Molecular Weight (lb/lb-mole):	69.0000
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	4.0971
Daily Avg. Liquid Surface Temp. (deg. R):	536.2339
Daily Average Ambient Temp. (deg. F):	51.9625
Ideal Gas Constant R	
(psia cu ft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	530.5287
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation	
Factor (Btu/sqft day):	1,452.1184
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.2217
Daily Vapor Temperature Range (deg. R):	19.7027
Daily Vapor Pressure Range (psia):	1.5808
Breather Vent Press. Setting Range (psia):	0.0000
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	4.0971
Vapor Pressure at Daily Minimum Liquid	
Surface Temperature (psia):	3.3681
Vapor Pressure at Daily Maximum Liquid	
Surface Temperature (psia):	4.9489
Daily Avg. Liquid Surface Temp. (deg R):	536.2339
Daily Min. Liquid Surface Temp. (deg R):	526.3825
Daily Max. Liquid Surface Temp. (deg R):	546.0852
Daily Ambient Temp. Range (deg. R):	23.3583
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.4967
Vapor Pressure at Daily Average Liquid:	
Surface Temperature (psia):	4.0971
Vapor Space Outage (ft):	4.6667
Working Losses (lb):	7,977.1468
Vapor Molecular Weight (lb/lb-mole):	69.0000
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	4.0971
Annual Net Throughput (gal/yr.):	4,369,701.0000
Annual Turnovers:	286.9417
Turnover Factor:	0.2712
Maximum Liquid Volume (gal):	15,228.5332
Maximum Liquid Height (ft):	18.0000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	9,019.3125

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

400 bbl oil storage tank - Vertical Fixed Roof Tank
Altamont, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 6)	7,977.15	1,042.17	9,019.31